

CLAIMS

1. A communication apparatus comprising:

a propagation environment estimating section that estimates a propagation environment using a signal transmitted from a communicating party; and

a first data acquiring section that acquires first data using an estimation value obtained in the propagation environment estimating section.

2. The communication apparatus according to claim 1, further comprising:

a decoding section that decodes a received signal using the first data acquired in the first data acquiring section to acquire second data.

3. The communication apparatus according to claim 1, further comprising:

a coding section that encodes the estimation value obtained in the propagation environment estimating section,

wherein the first data acquiring section acquires the first data from an encoding pattern of the estimation value encoded.

4. The communication apparatus according to claim 1, further comprising:

a comparing section that compares the estimation value obtained for each channel with one another, wherein based on a comparison result in the comparing section, the first data acquiring section acquires the

first data.

5. The communication apparatus according to claim 1, further comprising:

a storing section that stores a reference signal
5 known between the apparatus and the communicating party,
wherein the propagation environment estimating section
obtains the correlation of the reference signal and the
signal and generates a delay profile as the estimation
value, and the first data acquiring section uses a
10 reference table that associates the delay profile with
the first data, and reads out first data associated with
the delay profile generated in the propagation
environment estimating section from the reference table
to acquire the first data.

15 6. The communication apparatus according to claim 5,
wherein the first data acquiring section calculates the
convolution of the auto-correlation function of the
reference signal and a quantization vector stored in the
reference table, and performs metric calculation using
20 the delay profile and the quantization vector subjected
to the convolution, and thereby selects a vector code
to acquire the first data.

7. The communication apparatus according to claim 5,
wherein the first data acquiring section performs
25 orthogonal conversion on the delay profile generated in
the propagation environment estimating section to
condense signal components, and acquires the first data

using the signal components.

8. The communication apparatus according to claim 1, further comprising:

an equalizing section that performs equalizing on
5 a received signal based on the estimation value obtained in the propagation environment estimating section to acquire second data.

9. A communication system comprising:

a first communication apparatus comprising:
10 a propagation environment control section that controls a propagation environment in transmitting a signal; and

a transmitting section that transmits the signal in the propagation environment controlled in the
15 propagation environment control section, and

a second communication apparatus comprising:
a first propagation estimating section which receives the signal transmitted from the first communication apparatus, and estimates a propagation
20 environment using the signal; and

a first data acquiring section that acquires first data using an estimation value obtained in the first propagation environment estimating section.

10. The communication system according to claim 9,
25 wherein the first communication apparatus further comprises:

a second propagation environment estimating section

that estimates a propagation environment using a signal transmitted from the second communication apparatus; and

a plurality of antenna elements,

wherein the transmitting section performs weighting on

5 a transmission signal for each of the antenna elements in such a way that enables only a specific second communication apparatus to acquire the first data using the estimation value obtained in the second propagation environment estimating section.

10 11. The communication system according to claim 9, wherein the second communication apparatus further comprises:

a coding section that encodes the second data using the estimation value obtained in the first propagation environment estimating section;

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a modulation section that modulates the second data;

and

a transmitting section that transmits the second data.

20 12. A receiving method comprising:

estimating a propagation environment using a signal transmitted from a communicating party; and

an acquiring first data using an estimation value of an estimated propagation environment.

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